FINAL REPORT

FC

Project NR 123-705
Contract (NR 123-705)

EFFECT OF DRUGS ON THERMODYNAMICS OF ENZYME ACTION

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I am submitting the final report on project NR 123-705 "The Effects of Drugs on Thermodynamics of Enzyme Action."

Since the last report for the period of 1 February 1954 to 31 January 1955 the following work was carried out or completed.

Publication by Dr. S. Katz of "The Thermodynamics of the Reaction of Pyruvic Acid with Reduced Diphosphopyridine Nucleotide" Biochemica et Biophysica Acta, 17, 226, 1955.

A study of the oxidation of catechol by tyrosinase by Dr. E. Meiser. Dr. Meiser was determining the optimal conditions for the reaction and methods of stopping the reaction as preliminary steps before doing calorimetry. Dr. Meiser left this department and the work was not completed. Therefore the work in this field was at a standstill on completion of the grant.

The names of the various investigators employed on this grant are as follows:

Dr. Frederick C. Holler	1 year
Dr. Carl R. Bauer	Sept. 1950-July 1951
Dr. Alan Crosby	3 months, summer, 1951
Dr. Carl Bonhorst	8 months
Dr. Elizabeth Meiser	8 months
Dr. Sam Katz	8 months
Dr. J. M. Watkins	3 months
Dr. Robert F. Williams	1 month
Dr. Truman A. Botts	3 months

Technicians:

Miss Betty Ann Grim	1 year
Mrs. E. Kelly	3 months

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Publications:

Bauer, C. R. and Gemmill, C. L. The Heat Produced by the Enzymatic Action of the Sucrose-Invertase and Urea-Urease Systems. Arch. Biochem. and Biophysics, 35, 110, 1952.

Watkins, J. M. and C. L. Gemmill. Infrared Gas Analyzer for Low Concentrations of Carbon Dioxide. Anal. Chem. 24, 591, 1952.

Katz, S. The Thermodynamics of the Reaction of Pyruvic Acid with Reduced Diphosphopyridine Nucleotide. Biochemica et Biophysica Acta, 17, 226, 1955.

Yearly Reports:

Comprehensive Report for Period Feb. 1, 1950 to April 1, 1951 submitted April 18, 1951.

Report for period 1 Feb. 1954 to 31 Jan. 1955.

I have no copies of the reports of 1952, 1953 and 1954.

General Summary: The work in this field was difficult both from the standpoint of the physical and chemical determinations. The chemical determinations were more difficult than the physical. A calorimeter was constructed and in operation sensitive to temperature changes of 0.001° C. However, the ability to determine the chemical changes and to avoid side reactions was difficult. Another problem was the obtaining of men interested in the problem and willing to work for a long period of time in this field.